

July 15, 2021

Ms. Nancy Rumrill
U.S. Environmental Protection Agency, Region 9
Drinking Water Protection Services, WTR-3-2
75 Hawthorne Street
San Francisco, California 94105

Re: Transmittal of Supplemental Information in Support of Application for Underground Injection Control Permit, Florence Copper Project, Florence, Arizona

Dear Ms. Rumrill:

Pursuant to our telephone conversation on July 8, 2021, Florence Copper Inc. (Florence Copper) herewith transmits supplemental information in support of our application for an Underground Injection Control (UIC) Permit submitted to the U.S. Environmental Protection Agency (USEPA) on October 4, 2019 (Application). This information reflects our understanding of, and response to, questions the USEPA has regarding previously submitted Application materials.

Our stated understanding of the additional information required by the USEPA is described below, followed by our response, which includes references to the attached materials.

Request 1:

The USEPA requested that Florence Copper provide a listing of the 32 POC wells and 16 Supplemental monitoring wells included in the closure cost estimate submitted to USEPA.

Response 1:

The 32 Point of Compliance (POC) wells and 16 supplemental monitoring wells are listed in Table D-7.1 of Exhibit D-7, submitted to USEPA on March 19, 2021. Tables listing the POC wells and supplemental monitoring wells are provided below for the reviewer's convenience.

POC Wells		
Well Name	Existing/Planned	In/Out of AOR
M1-GL	Existing	Inside AOR
M2-GU	Existing	Outside AOR
M3-GL	Existing	Outside AOR
M4-O	Existing	Outside AOR
M6-GU	Existing	Inside AOR
M7-GL	Existing	Inside AOR

POC Wells		
Well Name	Existing/Planned	In/Out of AOR
M8-O	Existing	Inside AOR
M14-GL	Existing	Inside AOR
M15-GU	Existing	Inside AOR
M-16 GU(R)	Existing	Inside AOR
M17-GL	Existing	Inside AOR
M18-GU	Existing	Inside AOR
M19-LBF	Existing	Inside AOR
M20-O(R)	Existing	Inside AOR
M21-UBF	Existing	Inside AOR
M22-O	Existing	Inside AOR
M23-UBF	Existing	Inside AOR
M24-O	Existing	Inside AOR
M25-UBF	Existing	Inside AOR
M26-O	Existing	Inside AOR
M27-LBF	Existing	Inside AOR
M28-LBF	Existing	Inside AOR
M29-UBF	Existing	Inside AOR
M30-O	Existing	Inside AOR
M31-LBF	Existing	Inside AOR
M32-UBF(R)	Planned	Outside AOR
M33-UBF(R)	Planned	Outside AOR
M52-UBF	Existing	Inside AOR
O19-GL	Existing	Inside AOR
P19-1-O	Existing	Inside AOR
O49-O	Existing	Inside AOR
P49-O	Existing	Inside AOR
Notes: AOC = Area of Review POC = Point of Compliance		

Supplemental Monitoring Wells			
Well Name	Existing/Planned	In/Out of AOR	Monitoring Purpose
M62-LBF	Planned	Inside AOR	Fault Monitoring
M63-LBF	Planned	Inside AOR	Fault Monitoring
M64-LBF	Planned	Inside AOR	Fault Monitoring
M65-LBF	Planned	Inside AOR	Fault Monitoring
M66-UBF	Planned	Inside AOR	USDW Monitoring
M67-LBF	Planned	Inside AOR	USDW Monitoring
M68-LBF	Planned	Inside AOR	USDW Monitoring
M69-UBF	Planned	Inside AOR	USDW Monitoring
M70-LBF	Planned	Inside AOR	USDW Monitoring
M71-UBF	Planned	Inside AOR	USDW Monitoring
M72-UBF	Planned	Inside AOR	ACD Test
M73-LBF	Planned	Inside AOR	ACD Test
M74-O	Planned	Inside AOR	Fault Monitoring
M75-UBF	Planned	Inside AOR	Fault Monitoring

Supplemental Monitoring Wells			
Well Name	Existing/Planned	In/Out of AOR	Monitoring Purpose
M76-O	Planned	Inside AOR	Fault Monitoring
M77-LBF	Planned	Inside AOR	Fault Monitoring
Notes: AOC = Area of Review POC = Point of Compliance			

Five of the POC wells are located outside of the Area of Review, which were sited specifically to monitor upgradient groundwater conditions to monitoring conditions down gradient of the pond complexes. The location of each POC and supplemental monitoring well is shown on Figure A-17 (attached).

Request 2:

The USEPA requested that Florence Copper add the future wells from the two planned supplemental monitoring clusters on the east side of the ISCR wellfield to the monitoring Tables included in Exhibit D-7 of Attachment D of the Application.

Response 2:

The future supplemental monitoring wells planned for installation on the east side of the in-situ copper recovery (ISCR) wellfield have been added to Tables 13.1 and 14.1. The planned supplemental monitoring wells have been assigned the names M78-UBF, M79-LBF, M80-O, M81-UBF, M82-LBF, and M83-O. As noted in our January 21, 2021 submittal, these wells will be installed prior to year nine of ISCR operations. The revised monitoring tables 13.1 and 14.1 are attached.

Request 3:

The USEPA requested a narrative explanation of the use of the well triplets to demonstrate the 1-foot drawdown (gradient) requirement to be demonstrated at the edge of the ISCR wellfield.

Response 3:

Florence Copper has proposed to demonstrate that 1 foot of drawdown has been achieved at the edge of the ISCR wellfield by making a comparison of the pumping water level at the edge of the wellfield to the water level in the observation well. The basic demonstration will include comparison of the water levels at an ISCR recovery well and the observation well at the edge of the wellfield on a daily basis. This is consistent with the drawdown demonstration made during operation of the PTF wellfield on a daily basis.

The ISCR wellfield will include perimeter wells located at the edge of the wellfield to augment hydraulic control. The perimeter wells are a second row of recovery wells located at the edge of the wellfield. As the wellfield expands, there will be locations at interior and exterior corners of the wellfield where hydraulic control wells may be closer to the observation wells than the ISCR recovery wells. Consequently, Florence Copper would like to maintain the flexibility to make the 1-foot drawdown demonstration between an observation and permitter well at those locations.

In an instance where the hydraulic conductivity is high, or in areas (like interior corners) where multiple recovery and perimeter wells bracket observation wells, the water level in the observation well may be drawn down to the point where the cone of depression has extended further from the wellfield. In these instances, Florence Copper will include the water level at the nearest POC well to demonstrate that the water level has been drawn down at least 1 foot below the ambient water level. This comparison will rely on the POC water level as a zero-change location for the purpose of drawdown comparison.

The triplet comparison includes one pumping well (either recovery or perimeter), one observation well, and the nearest POC well. The triplet comparison may be stated in the following terms:

1. Compare pumping water level at pumping well (ISCR recovery or perimeter) to the water level at the observation well to demonstrate 1 foot of drawdown.
2. If 1 foot of drawdown is not observed between pumping and observation well, compare pumping water level and observation well water level to POC water level to demonstrate 1 foot of drawdown below ambient regional water level.

To achieve this demonstration, daily water levels will be recorded at each recovery well, perimeter well, observation well, and POC well used in the demonstration.

Request 4:

The USEPA requested calcification regarding the planned method for calculating AL and AQL values for new and existing monitoring and POC wells.

Response 4:

The method for calculating Alert Level (AL) and Aquifer Quality Limit (AQL) values is defined in Aquifer Protection Permit (APP) No. P-101704 issued in December 2020. The method defined in the APP was developed by the Arizona Department of Environmental Quality (ADEQ) and is consistently applied in permits throughout Arizona. Florence Copper defers to the AL and AQL development method stated in Sections 2.5.3.3 and 2.5.3.4 of the APP. The language from these sections is provided below for the reviewer's convenience.

2.5.3.3. Alert Levels (ALs) for Point of Compliance Wells

ALs shall be calculated for all contaminants with an established numeric AWQS for any new or replacement POC wells, unless otherwise specified in this permit.

The permittee shall submit the ambient groundwater data in tabulated form to the Groundwater Protection Value Stream for review. Copies of all laboratory analytical reports, field notes, and the Quality Assurance/Quality Control (QA/QC) procedures used in collection and analyses of the samples for all parameters listed in Section 4.2, Table 13: QUARTERLY GROUNDWATER COMPLIANCE MONITORING and Table 14: ANNUAL GROUNDWATER MONITORING to be established for each POC well, shall be submitted to the Groundwater Protection Value Stream. The permittee may submit a report with the calculations for each AL and AQL included in the permit for review and approval by ADEQ, or the permittee may defer calculation of the ALs and AQLs by the Groundwater Protection Value Stream. The ALs shall be established and

calculated following acceptable statistical guidance such as the *USEPA Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities Unified Guidance* (EPA 530-R-09-007)

The following criteria shall be met in establishing ALs in the permit:

1. The AL shall be calculated for a parameter using the analyses from a minimum of 8 sampling events.
2. Any data where the laboratory Practical Quantitation Limit (PQL) exceeds 80% of the AWQS shall not be included in the AL calculation.
3. If a parameter is below the detection limit, the permittee must report the value as "less than" the numeric value for the PQL or detection limit for the parameter, not just as "non-detect". For those parameters, the permittee shall use a value of one-half the reported detection limit for the AL calculation.
4. If the analytical results from more than 50% of the samples for a specific parameter are non-detect, then the AL shall be set at 80% of the AWQS.
5. If the calculated AL for a specific constituent and well is less than 80% of the AWQS, the AL shall be set at 80% of the AWQS for that constituent in that well.

2.5.3.4. Aquifer Quality Limits for POC Wells

For each of the monitored analytes for which a numeric AWQS has been adopted, the AQL shall be established as follows:

1. If the calculated AL is less than the AWQS, then the AQL shall be set equal to the AWQS.
2. If the calculated AL is greater than the AWQS, then the AQL shall be set equal to the calculated AL value, and no AL shall be set for that constituent at that monitoring point.

Please contact me at 520-316-3710 if you require any additional information.

Sincerely,
Florence Copper Inc.



Brent Berg
General Manager

cc: Maribeth Greenslade, Arizona Department of Environmental Quality

Enclosures:

Figure A-17: Proposed Fault and USDW Monitoring Well Locations

Table 13.1: Quarterly Groundwater Compliance Monitoring at Supplemental Monitoring Wells

Table 14.1: Annual Groundwater Compliance Monitoring at Supplemental Monitoring Wells

FLORENCE COPPER INC.











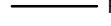




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ATTACHMENTS

GIS FILE PATH: C:\Users\shansen\OneDrive - haleyaldrich.com\Desktop\K11_LOCAL\1132473_005_FLORENCE COPPER, INC. PERMITTING\GIS\Mapa2021_031132473_005_0A-17_PROPOSED_FAULT_AND_USDW_MONITORING_WELL_LOCATIONS_MAP_21.mxd — USER: shansen — LAST SAVED: 3/18/2021 1:02:00 PM

LEGEND

- | | | | | | |
|---|------------------------------------|---|------------------------------|---|-----------------------------------|
|  | PTF CLASS III WELL |  | FAULT MONITORING WELL |  | PROPOSED AOR / FORMER BHP AOR |
|  | PROPOSED INJECTION / RECOVERY WELL |  | POINT OF COMPLIANCE WELL |  | AQUIFER EXEMPTION BOUNDARY |
|  | PROPOSED OBSERVATION WELL |  | FAULT |  | ISCR WELL FIELD |
|  | PROPOSED PERIMETER WELL |  | RESOURCE BLOCK |  | FLORENCE COPPER PROPERTY BOUNDARY |
|  | USDW MONITORING WELL |  | FUTURE WELL CLUSTER LOCATION | | |
|  | ACD DEMONSTRATION WELL | | | | |

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE
2. TOPOGRAPHIC CONTOUR SOURCE: FLORENCE COPPER, OCTOBER 2010
3. FUTURE WELL CLUSTER LOCATIONS TO BE INSTALLED BEFORE YEAR NINE OF OPERATIONS AND INCLUDE ONE UBF, ONE LBF, AND ONE OXIDE MONITORING WELL.

HALEY
ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

PROPOSED FAULT AND USDW
MONITORING WELL LOCATIONS

MARCH 2021

FIGURE A-17

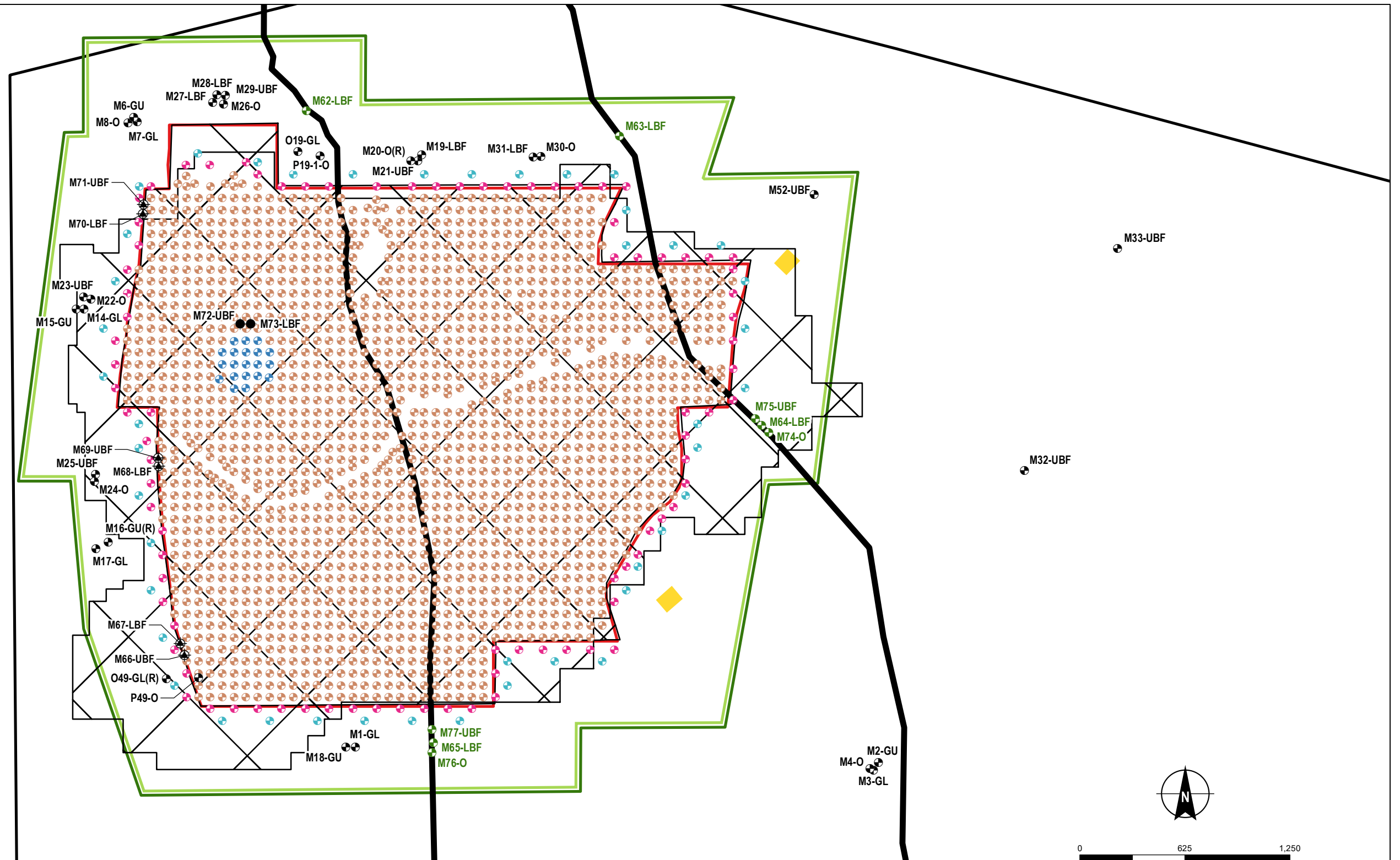


Table 13.1. Quarterly Groundwater Compliance Monitoring at Supplemental Monitoring Wells

Parameter	M66-UBF (USDW Monitoring Well)		M67-LBF (USDW Monitoring Well)		M68-LBF (USDW Monitoring Well)		M69-UBF (USDW Monitoring Well)	
	AQL (mg/L)	AL (mg/L)	AQL (mg/L)	AL (mg/L)	AQL (mg/L)	AL (mg/L)	AQL (mg/L)	AL (mg/L)
Depth to Groundwater (ft. bgs)	TBD ¹	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Water Level Elevation (ft amsl)	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Indicator Parameters:								
pH (field) (S.U.)	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Specific Conductance (field) (mhos/cm)	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Temperature (field)	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Fluoride	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Magnesium	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Sulfate	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Total dissolved solids	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Parameter	M70-LBF (USDW Monitoring Well)		M71-UBF (USDW Monitoring Well)		M72-UBF (ACD Demonstration Well)		M73-LBF (ACD Demonstration Well)	
	AQL (mg/L)	AL (mg/L)	AQL (mg/L)	AL (mg/L)	AQL (mg/L)	AL (mg/L)	AQL (mg/L)	AL (mg/L)
Depth to Groundwater (ft. bgs)	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Water Level Elevation (ft amsl)	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Indicator Parameters:								
pH (field) (S.U.)	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Specific Conductance (field) (mhos/cm)	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Temperature (field)	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Fluoride	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Magnesium	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Sulfate	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Total dissolved solids	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Parameter	M62-LBF (Fault Monitoring Well)		M63-LBF (Fault Monitoring Well)		M64-LBF (Fault Monitoring Well)		M65-LBF (Fault Monitoring Well)	
	AQL (mg/L)	AL (mg/L)	AQL (mg/L)	AL (mg/L)	AQL (mg/L)	AL (mg/L)	AQL (mg/L)	AL (mg/L)
Depth to Groundwater (ft. bgs)	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Water Level Elevation (ft amsl)	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Indicator Parameters:								
pH (field) (S.U.)	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Specific Conductance (field) (mhos/cm)	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Temperature (field)	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Fluoride	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Magnesium	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Sulfate	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Total dissolved solids	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Parameter	M75-UBF (Fault Monitoring Well)		M74-O (Fault Monitoring Well)		M77-UBF (Fault Monitoring Well)		M76-O (Fault Monitoring Well)	
	AQL (mg/L)	AL (mg/L)	AQL (mg/L)	AL (mg/L)	AQL (mg/L)	AL (mg/L)	AQL (mg/L)	AL (mg/L)
Depth to Groundwater (ft. bgs)	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Water Level Elevation (ft amsl)	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Indicator Parameters:								
pH (field) (S.U.)	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Specific Conductance (field) (mhos/cm)	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Temperature (field)	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Fluoride	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Magnesium	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Sulfate	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Total dissolved solids	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Parameter	M78-UBF (FUTURE SE Monitoring Cluster)		M79-LBF (FUTURE SE Monitoring Cluster)		M80-O (FUTURE SE Monitoring Cluster)		M81-UBF (FUTURE NE Monitoring Cluster)	
	AQL	AL	AQL	AL	AQL	AL	AQL	AL
Depth to Groundwater (ft. bgs)	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Water Level Elevation (ft amsl)	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Indicator Parameters:								
pH (field) (S.U.)	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Specific Conductance (field) (mhos/cm)	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Temperature (field)	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Fluoride	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Magnesium	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Sulfate	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Total dissolved solids	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD

Table 13.1. Quarterly Groundwater Compliance Monitoring at Supplemental Monitoring Wells								
Parameter	M82-LBF (FUTURE NE Monitoring Cluster)		M83-O (FUTURE NE Monitoring Cluster)					
	AQL (mg/L)	AL (mg/L)	AQL (mg/L)	AL (mg/L)				
Depth to Groundwater (ft. bgs)	TBD	TBD	TBD	TBD				
Water Level Elevation (ft amsl)	TBD	TBD	TBD	TBD				
Indicator Parameters:								
pH (field) (S.U.)	TBD	TBD	TBD	TBD				
Specific Conductance (field) (mhos/cm)	TBD	TBD	TBD	TBD				
Temperature (field)	TBD	TBD	TBD	TBD				
Fluoride	TBD	TBD	TBD	TBD				
Magnesium	TBD	TBD	TBD	TBD				
Sulfate	TBD	TBD	TBD	TBD				
Total dissolved solids	TBD	TBD	TBD	TBD				

Notes:

ACD = annular conductivity device

AL = Alert Level

AQL = Aquifer Quality Limit

ft. amsl = feet above mean sea level

ft. bgs = feet below ground surface

mg/L = milligrams per liter

mhos/cm = microsiemens per centimeter

S.U. = standard unit

TBD = To Be Determined

USDW = Underground Source of Drinking Water

Table 14.1. Annual Groundwater Compliance Monitoring at Supplemental Monitoring Wells

Parameter ¹	M66-UBF (USDW Monitoring Well)		M67-LBF (USDW Monitoring Well)		M68-LBF (USDW Monitoring Well)	
	AQL (mg/L)	AL (mg/L)	AQL (mg/L)	AL (mg/L)	AQL (mg/L)	AL (mg/L)
pH (lab)	TBD	TBD	TBD	TBD	TBD	TBD
Bicarbonate	TBD	TBD	TBD	TBD	TBD	TBD
Calcium	TBD	TBD	TBD	TBD	TBD	TBD
Carbonate	TBD	TBD	TBD	TBD	TBD	TBD
Chloride	TBD	TBD	TBD	TBD	TBD	TBD
Nitrate as nitrogen ³	TBD	TBD	TBD	TBD	TBD	TBD
Potassium	TBD	TBD	TBD	TBD	TBD	TBD
Sodium	TBD	TBD	TBD	TBD	TBD	TBD
Cation/anion balance	TBD	TBD	TBD	TBD	TBD	TBD
Aluminum	TBD	TBD	TBD	TBD	TBD	TBD
Antimony	TBD	TBD	TBD	TBD	TBD	TBD
Arsenic	TBD	TBD	TBD	TBD	TBD	TBD
Barium	TBD	TBD	TBD	TBD	TBD	TBD
Beryllium	TBD	TBD	TBD	TBD	TBD	TBD
Cadmium	TBD	TBD	TBD	TBD	TBD	TBD
Chromium (total)	TBD	TBD	TBD	TBD	TBD	TBD
Cobalt	TBD	TBD	TBD	TBD	TBD	TBD
Copper	TBD	TBD	TBD	TBD	TBD	TBD
Iron	TBD	TBD	TBD	TBD	TBD	TBD
Lead	TBD	TBD	TBD	TBD	TBD	TBD
Manganese	TBD	TBD	TBD	TBD	TBD	TBD
Mercury	TBD	TBD	TBD	TBD	TBD	TBD
Nickel	TBD	TBD	TBD	TBD	TBD	TBD
Selenium	TBD	TBD	TBD	TBD	TBD	TBD
Thallium	TBD	TBD	TBD	TBD	TBD	TBD
Zinc	TBD	TBD	TBD	TBD	TBD	TBD
Gross Alpha	TBD	TBD	TBD	TBD	TBD	TBD
Adjusted Gross Alpha (pCi/L) ⁵	TBD	TBD	TBD	TBD	TBD	TBD
Radium 226 + 228 (pCi/L)	TBD	TBD	TBD	TBD	TBD	TBD
Total Uranium Isotopes (pCi/L) ⁶	TBD	TBD	TBD	TBD	TBD	TBD
Total Uranium	TBD	TBD	TBD	TBD	TBD	TBD
Total petroleum hydrocarbons- diesel	TBD	TBD	TBD	TBD	TBD	TBD
Benzene	TBD	TBD	TBD	TBD	TBD	TBD
Ethylbenzene	TBD	TBD	TBD	TBD	TBD	TBD
Toluene	TBD	TBD	TBD	TBD	TBD	TBD
Total Xylene	TBD	TBD	TBD	TBD	TBD	TBD

Table 14.1. Annual Groundwater Compliance Monitoring at Supplemental Monitoring Wells

Parameter	M69-UBF (USDW Monitoring Well)		M70-LBF (USDW Monitoring Well)		M71-UBF (USDW Monitoring Well)	
	AQL (mg/l)	AL (mg/L)	AQL (mg/L)	AL (mg/L)	AQL (mg/L)	AL (mg/L)
pH (lab)	TBD	TBD	TBD	TBD	TBD	TBD
Bicarbonate	TBD	TBD	TBD	TBD	TBD	TBD
Calcium	TBD	TBD	TBD	TBD	TBD	TBD
Carbonate	TBD	TBD	TBD	TBD	TBD	TBD
Chloride	TBD	TBD	TBD	TBD	TBD	TBD
Nitrate as nitrogen	TBD	TBD	TBD	TBD	TBD	TBD
Potassium	TBD	TBD	TBD	TBD	TBD	TBD
Sodium	TBD	TBD	TBD	TBD	TBD	TBD
Cation/anion balance	TBD	TBD	TBD	TBD	TBD	TBD
Aluminum	TBD	TBD	TBD	TBD	TBD	TBD
Antimony	TBD	TBD	TBD	TBD	TBD	TBD
Arsenic	TBD	TBD	TBD	TBD	TBD	TBD
Barium	TBD	TBD	TBD	TBD	TBD	TBD
Beryllium	TBD	TBD	TBD	TBD	TBD	TBD
Cadmium	TBD	TBD	TBD	TBD	TBD	TBD
Chromium (total)	TBD	TBD	TBD	TBD	TBD	TBD
Cobalt	TBD	TBD	TBD	TBD	TBD	TBD
Copper	TBD	TBD	TBD	TBD	TBD	TBD
Iron	TBD	TBD	TBD	TBD	TBD	TBD
Lead	TBD	TBD	TBD	TBD	TBD	TBD
Manganese	TBD	TBD	TBD	TBD	TBD	TBD
Mercury	TBD	TBD	TBD	TBD	TBD	TBD
Nickel	TBD	TBD	TBD	TBD	TBD	TBD
Selenium	TBD	TBD	TBD	TBD	TBD	TBD
Thallium	TBD	TBD	TBD	TBD	TBD	TBD
Zinc	TBD	TBD	TBD	TBD	TBD	TBD
Gross Alpha	TBD	TBD	TBD	TBD	TBD	TBD
Adjusted Gross Alpha (pCi/L)	TBD	TBD	TBD	TBD	TBD	TBD
Radium 226 + 228 (pCi/L)	TBD	TBD	TBD	TBD	TBD	TBD
Total Uranium Isotopes (pCi/L)	TBD	TBD	TBD	TBD	TBD	TBD
Total Uranium	TBD	TBD	TBD	TBD	TBD	TBD
Total petroleum hydrocarbons- diesel	TBD	TBD	TBD	TBD	TBD	TBD
Benzene	TBD	TBD	TBD	TBD	TBD	TBD
Ethylbenzene	TBD	TBD	TBD	TBD	TBD	TBD
Toluene	TBD	TBD	TBD	TBD	TBD	TBD
Total Xylene	TBD	TBD	TBD	TBD	TBD	TBD

Table 14.1. Annual Groundwater Compliance Monitoring at Supplemental Monitoring Wells

Parameter	M72-UBF (ACD Demonstration Well)		M73-LBF (ACD Demonstration Well)		M62-LBF (Fault Monitoring Well)	
	AQL (mg/L)	AL (mg/L)	AQL (mg/L)	AL (mg/L)	AQL (mg/L)	AL (mg/L)
pH (lab)	TBD	TBD	TBD	TBD	TBD	TBD
Bicarbonate	TBD	TBD	TBD	TBD	TBD	TBD
Calcium	TBD	TBD	TBD	TBD	TBD	TBD
Carbonate	TBD	TBD	TBD	TBD	TBD	TBD
Chloride	TBD	TBD	TBD	TBD	TBD	TBD
Nitrate as nitrogen	TBD	TBD	TBD	TBD	TBD	TBD
Potassium	TBD	TBD	TBD	TBD	TBD	TBD
Sodium	TBD	TBD	TBD	TBD	TBD	TBD
Cation/anion balance	TBD	TBD	TBD	TBD	TBD	TBD
Aluminum	TBD	TBD	TBD	TBD	TBD	TBD
Antimony	TBD	TBD	TBD	TBD	TBD	TBD
Arsenic	TBD	TBD	TBD	TBD	TBD	TBD
Barium	TBD	TBD	TBD	TBD	TBD	TBD
Beryllium	TBD	TBD	TBD	TBD	TBD	TBD
Cadmium	TBD	TBD	TBD	TBD	TBD	TBD
Chromium (total)	TBD	TBD	TBD	TBD	TBD	TBD
Cobalt	TBD	TBD	TBD	TBD	TBD	TBD
Copper	TBD	TBD	TBD	TBD	TBD	TBD
Iron	TBD	TBD	TBD	TBD	TBD	TBD
Lead	TBD	TBD	TBD	TBD	TBD	TBD
Manganese	TBD	TBD	TBD	TBD	TBD	TBD
Mercury	TBD	TBD	TBD	TBD	TBD	TBD
Nickel	TBD	TBD	TBD	TBD	TBD	TBD
Selenium	TBD	TBD	TBD	TBD	TBD	TBD
Thallium	TBD	TBD	TBD	TBD	TBD	TBD
Zinc	TBD	TBD	TBD	TBD	TBD	TBD
Gross Alpha	TBD	TBD	TBD	TBD	TBD	TBD
Adjusted Gross Alpha (pCi/L)	TBD	TBD	TBD	TBD	TBD	TBD
Radium 226 + 228 (pCi/L)	TBD	TBD	TBD	TBD	TBD	TBD
Total Uranium Isotopes (pCi/L)	TBD	TBD	TBD	TBD	TBD	TBD
Total Uranium	TBD	TBD	TBD	TBD	TBD	TBD
Total petroleum hydrocarbons- diesel	TBD	TBD	TBD	TBD	TBD	TBD
Benzene	TBD	TBD	TBD	TBD	TBD	TBD
Ethylbenzene	TBD	TBD	TBD	TBD	TBD	TBD
Toluene	TBD	TBD	TBD	TBD	TBD	TBD
Total Xylene	TBD	TBD	TBD	TBD	TBD	TBD

Table 14.1. Annual Groundwater Compliance Monitoring at Supplemental Monitoring Wells

Parameter	M63-LBF (Fault Monitoring Well)		M64-LBF (Fault Monitoring Well)		M65-LBF (Fault Monitoring Well)	
	AQL (mg/L)	AL (mg/L)	AQL (mg/L)	AL (mg/L)	AQL (mg/L)	AL (mg/L)
pH (lab)	TBD	TBD	TBD	TBD	TBD	TBD
Bicarbonate	TBD	TBD	TBD	TBD	TBD	TBD
Calcium	TBD	TBD	TBD	TBD	TBD	TBD
Carbonate	TBD	TBD	TBD	TBD	TBD	TBD
Chloride	TBD	TBD	TBD	TBD	TBD	TBD
Nitrate as nitrogen	TBD	TBD	TBD	TBD	TBD	TBD
Potassium	TBD	TBD	TBD	TBD	TBD	TBD
Sodium	TBD	TBD	TBD	TBD	TBD	TBD
Cation/anion balance	TBD	TBD	TBD	TBD	TBD	TBD
Aluminum	TBD	TBD	TBD	TBD	TBD	TBD
Antimony	TBD	TBD	TBD	TBD	TBD	TBD
Arsenic	TBD	TBD	TBD	TBD	TBD	TBD
Barium	TBD	TBD	TBD	TBD	TBD	TBD
Beryllium	TBD	TBD	TBD	TBD	TBD	TBD
Cadmium	TBD	TBD	TBD	TBD	TBD	TBD
Chromium (total)	TBD	TBD	TBD	TBD	TBD	TBD
Cobalt	TBD	TBD	TBD	TBD	TBD	TBD
Copper	TBD	TBD	TBD	TBD	TBD	TBD
Iron	TBD	TBD	TBD	TBD	TBD	TBD
Lead	TBD	TBD	TBD	TBD	TBD	TBD
Manganese	TBD	TBD	TBD	TBD	TBD	TBD
Mercury	TBD	TBD	TBD	TBD	TBD	TBD
Nickel	TBD	TBD	TBD	TBD	TBD	TBD
Selenium	TBD	TBD	TBD	TBD	TBD	TBD
Thallium	TBD	TBD	TBD	TBD	TBD	TBD
Zinc	TBD	TBD	TBD	TBD	TBD	TBD
Gross Alpha	TBD	TBD	TBD	TBD	TBD	TBD
Adjusted Gross Alpha (pCi/L)	TBD	TBD	TBD	TBD	TBD	TBD
Radium 226 + 228 (pCi/L)	TBD	TBD	TBD	TBD	TBD	TBD
Total Uranium Isotopes (pCi/L)	TBD	TBD	TBD	TBD	TBD	TBD
Total Uranium	TBD	TBD	TBD	TBD	TBD	TBD
Total petroleum hydrocarbons- diesel	TBD	TBD	TBD	TBD	TBD	TBD
Benzene	TBD	TBD	TBD	TBD	TBD	TBD
Ethylbenzene	TBD	TBD	TBD	TBD	TBD	TBD
Toluene	TBD	TBD	TBD	TBD	TBD	TBD
Total Xylene	TBD	TBD	TBD	TBD	TBD	TBD

Table 14.1. Annual Groundwater Compliance Monitoring at Supplemental Monitoring Wells

Parameter	M75-UBF (Fault Monitoring Well)		M74-O (Fault Monitoring Well)		M77-UBF (Fault Monitoring Well)	
	AQL (mg/L)	AL (mg/L)	AQL (mg/L)	AL (mg/L)	AQL (mg/L)	AL (mg/L)
pH (lab)	TBD	TBD	TBD	TBD	TBD	TBD
Bicarbonate	TBD	TBD	TBD	TBD	TBD	TBD
Calcium	TBD	TBD	TBD	TBD	TBD	TBD
Carbonate	TBD	TBD	TBD	TBD	TBD	TBD
Chloride	TBD	TBD	TBD	TBD	TBD	TBD
Nitrate as nitrogen	TBD	TBD	TBD	TBD	TBD	TBD
Potassium	TBD	TBD	TBD	TBD	TBD	TBD
Sodium	TBD	TBD	TBD	TBD	TBD	TBD
Cation/anion balance	TBD	TBD	TBD	TBD	TBD	TBD
Aluminum	TBD	TBD	TBD	TBD	TBD	TBD
Antimony	TBD	TBD	TBD	TBD	TBD	TBD
Arsenic	TBD	TBD	TBD	TBD	TBD	TBD
Barium	TBD	TBD	TBD	TBD	TBD	TBD
Beryllium	TBD	TBD	TBD	TBD	TBD	TBD
Cadmium	TBD	TBD	TBD	TBD	TBD	TBD
Chromium (total)	TBD	TBD	TBD	TBD	TBD	TBD
Cobalt	TBD	TBD	TBD	TBD	TBD	TBD
Copper	TBD	TBD	TBD	TBD	TBD	TBD
Iron	TBD	TBD	TBD	TBD	TBD	TBD
Lead	TBD	TBD	TBD	TBD	TBD	TBD
Manganese	TBD	TBD	TBD	TBD	TBD	TBD
Mercury	TBD	TBD	TBD	TBD	TBD	TBD
Nickel	TBD	TBD	TBD	TBD	TBD	TBD
Selenium	TBD	TBD	TBD	TBD	TBD	TBD
Thallium	TBD	TBD	TBD	TBD	TBD	TBD
Zinc	TBD	TBD	TBD	TBD	TBD	TBD
Gross Alpha	TBD	TBD	TBD	TBD	TBD	TBD
Adjusted Gross Alpha (pCi/L)	TBD	TBD	TBD	TBD	TBD	TBD
Radium 226 + 228 (pCi/L)	TBD	TBD	TBD	TBD	TBD	TBD
Total Uranium Isotopes (pCi/L)	TBD	TBD	TBD	TBD	TBD	TBD
Total Uranium	TBD	TBD	TBD	TBD	TBD	TBD
Total petroleum hydrocarbons- diesel	TBD	TBD	TBD	TBD	TBD	TBD
Benzene	TBD	TBD	TBD	TBD	TBD	TBD
Ethylbenzene	TBD	TBD	TBD	TBD	TBD	TBD
Toluene	TBD	TBD	TBD	TBD	TBD	TBD
Total Xylene	TBD	TBD	TBD	TBD	TBD	TBD

Table 14.1. Annual Groundwater Compliance Monitoring at Supplemental Monitoring Wells

Parameter	M76-O (Fault Monitoring Well)		M78-UBF (FUTURE SE Monitoring Cluster)		M79-LBF (FUTURE SE Monitoring Cluster)	
	AQL (mg/L)	AL (mg/L)	AQL (mg/L)	AL (mg/L)	AQL (mg/L)	AL (mg/L)
pH (lab)	TBD	TBD	TBD	TBD	TBD	TBD
Bicarbonate	TBD	TBD	TBD	TBD	TBD	TBD
Calcium	TBD	TBD	TBD	TBD	TBD	TBD
Carbonate	TBD	TBD	TBD	TBD	TBD	TBD
Chloride	TBD	TBD	TBD	TBD	TBD	TBD
Nitrate as nitrogen	TBD	TBD	TBD	TBD	TBD	TBD
Potassium	TBD	TBD	TBD	TBD	TBD	TBD
Sodium	TBD	TBD	TBD	TBD	TBD	TBD
Cation/anion balance	TBD	TBD	TBD	TBD	TBD	TBD
Aluminum	TBD	TBD	TBD	TBD	TBD	TBD
Antimony	TBD	TBD	TBD	TBD	TBD	TBD
Arsenic	TBD	TBD	TBD	TBD	TBD	TBD
Barium	TBD	TBD	TBD	TBD	TBD	TBD
Beryllium	TBD	TBD	TBD	TBD	TBD	TBD
Cadmium	TBD	TBD	TBD	TBD	TBD	TBD
Chromium (total)	TBD	TBD	TBD	TBD	TBD	TBD
Cobalt	TBD	TBD	TBD	TBD	TBD	TBD
Copper	TBD	TBD	TBD	TBD	TBD	TBD
Iron	TBD	TBD	TBD	TBD	TBD	TBD
Lead	TBD	TBD	TBD	TBD	TBD	TBD
Manganese	TBD	TBD	TBD	TBD	TBD	TBD
Mercury	TBD	TBD	TBD	TBD	TBD	TBD
Nickel	TBD	TBD	TBD	TBD	TBD	TBD
Selenium	TBD	TBD	TBD	TBD	TBD	TBD
Thallium	TBD	TBD	TBD	TBD	TBD	TBD
Zinc	TBD	TBD	TBD	TBD	TBD	TBD
Gross Alpha	TBD	TBD	TBD	TBD	TBD	TBD
Adjusted Gross Alpha (pCi/L)	TBD	TBD	TBD	TBD	TBD	TBD
Radium 226 + 228 (pCi/L)	TBD	TBD	TBD	TBD	TBD	TBD
Total Uranium Isotopes (pCi/L)	TBD	TBD	TBD	TBD	TBD	TBD
Total Uranium	TBD	TBD	TBD	TBD	TBD	TBD
Total petroleum hydrocarbons- diesel	TBD	TBD	TBD	TBD	TBD	TBD
Benzene	TBD	TBD	TBD	TBD	TBD	TBD
Ethylbenzene	TBD	TBD	TBD	TBD	TBD	TBD
Toluene	TBD	TBD	TBD	TBD	TBD	TBD
Total Xylene	TBD	TBD	TBD	TBD	TBD	TBD

Table 14.1. Annual Groundwater Compliance Monitoring at Supplemental Monitoring Wells

Parameter	M80-O (FUTURE SE Monitoring Cluster)		M81-UBF (FUTURE NE Monitoring Cluster)		M82-LBF (FUTURE NE Monitoring Cluster)	
	AQL (mg/L)	AL (mg/L)	AQL (mg/L)	AL (mg/L)	AQL (mg/L)	AL (mg/L)
pH (lab)	TBD	TBD	TBD	TBD	TBD	TBD
Bicarbonate	TBD	TBD	TBD	TBD	TBD	TBD
Calcium	TBD	TBD	TBD	TBD	TBD	TBD
Carbonate	TBD	TBD	TBD	TBD	TBD	TBD
Chloride	TBD	TBD	TBD	TBD	TBD	TBD
Nitrate as nitrogen	TBD	TBD	TBD	TBD	TBD	TBD
Potassium	TBD	TBD	TBD	TBD	TBD	TBD
Sodium	TBD	TBD	TBD	TBD	TBD	TBD
Cation/anion balance	TBD	TBD	TBD	TBD	TBD	TBD
Aluminum	TBD	TBD	TBD	TBD	TBD	TBD
Antimony	TBD	TBD	TBD	TBD	TBD	TBD
Arsenic	TBD	TBD	TBD	TBD	TBD	TBD
Barium	TBD	TBD	TBD	TBD	TBD	TBD
Beryllium	TBD	TBD	TBD	TBD	TBD	TBD
Cadmium	TBD	TBD	TBD	TBD	TBD	TBD
Chromium (total)	TBD	TBD	TBD	TBD	TBD	TBD
Cobalt	TBD	TBD	TBD	TBD	TBD	TBD
Copper	TBD	TBD	TBD	TBD	TBD	TBD
Iron	TBD	TBD	TBD	TBD	TBD	TBD
Lead	TBD	TBD	TBD	TBD	TBD	TBD
Manganese	TBD	TBD	TBD	TBD	TBD	TBD
Mercury	TBD	TBD	TBD	TBD	TBD	TBD
Nickel	TBD	TBD	TBD	TBD	TBD	TBD
Selenium	TBD	TBD	TBD	TBD	TBD	TBD
Thallium	TBD	TBD	TBD	TBD	TBD	TBD
Zinc	TBD	TBD	TBD	TBD	TBD	TBD
Gross Alpha	TBD	TBD	TBD	TBD	TBD	TBD
Adjusted Gross Alpha (pCi/L)	TBD	TBD	TBD	TBD	TBD	TBD
Radium 226 + 228 (pCi/L)	TBD	TBD	TBD	TBD	TBD	TBD
Total Uranium Isotopes (pCi/L)	TBD	TBD	TBD	TBD	TBD	TBD
Total Uranium	TBD	TBD	TBD	TBD	TBD	TBD
Total petroleum hydrocarbons- diesel	TBD	TBD	TBD	TBD	TBD	TBD
Benzene	TBD	TBD	TBD	TBD	TBD	TBD
Ethylbenzene	TBD	TBD	TBD	TBD	TBD	TBD
Toluene	TBD	TBD	TBD	TBD	TBD	TBD
Total Xylene	TBD	TBD	TBD	TBD	TBD	TBD

Table 14.1. Annual Groundwater Compliance Monitoring at Supplemental Monitoring Wells

Parameter	M83-O (FUTURE NE Monitoring Cluster)					
	AQL (mg/L)	AL (mg/L)				
pH (lab)	TBD	TBD				
Bicarbonate	TBD	TBD				
Calcium	TBD	TBD				
Carbonate	TBD	TBD				
Chloride	TBD	TBD				
Nitrate as nitrogen	TBD	TBD				
Potassium	TBD	TBD				
Sodium	TBD	TBD				
Cation/anion balance	TBD	TBD				
Aluminum	TBD	TBD				
Antimony	TBD	TBD				
Arsenic	TBD	TBD				
Barium	TBD	TBD				
Beryllium	TBD	TBD				
Cadmium	TBD	TBD				
Chromium (total)	TBD	TBD				
Cobalt	TBD	TBD				
Copper	TBD	TBD				
Iron	TBD	TBD				
Lead	TBD	TBD				
Manganese	TBD	TBD				
Mercury	TBD	TBD				
Nickel	TBD	TBD				
Selenium	TBD	TBD				
Thallium	TBD	TBD				
Zinc	TBD	TBD				
Gross Alpha	TBD	TBD				
Adjusted Gross Alpha (pCi/L)	TBD	TBD				
Radium 226 + 228 (pCi/L)	TBD	TBD				
Total Uranium Isotopes (pCi/L)	TBD	TBD				
Total Uranium	TBD	TBD				
Total petroleum hydrocarbons- diesel	TBD	TBD				
Benzene	TBD	TBD				
Ethylbenzene	TBD	TBD				
Toluene	TBD	TBD				
Total Xylene	TBD	TBD				

Notes:

¹ Metals must be analyzed as dissolved metals.

² Monitor = Monitoring required, but no AQL or AL will be established in the permit.

³ Nitrate will be used only for calculation of cation/anion balance because of regional nitrate pollution and none used in processes.

⁴ NE = Not Established

⁵ If the gross alpha particle activity is greater than the AL or AQL, then calculate the adjusted gross alpha particle activity. The adjusted gross alpha particle activity is the gross alpha particle activity, including radium 226, and any other alpha emitters, if present in the water sample, minus radon and total uranium (the sum of uranium 238, uranium 235 and uranium 234 isotopes). The gross alpha analytical procedure (evaporation technique: EPA Method 900.0) drives off radon gas in the water samples. Therefore, the Adjusted Gross Alpha should be calculated using the following formula: (Laboratory Reported Gross Alpha MINUS Sum of the Uranium Isotopes).

⁶ Uranium Isotope activity results must be used for calculating Adjusted Gross Alpha.

ACD = annular connectivity device

AL = alert level

AQL = Aquifer Quality Limit

mg/L = milligrams per liter

pCi/L = picocuries per liter

TBD = To Be Determined

USDW = Underground Source of Drinking Water